

**IN THE CLAIMS**

**Please amend the claims as follows:**

1. (currently amended) A method of predicting head-disk interaction in a magnetic data storage and retrieval system, comprising:

detecting a position error signal amplitude indicative of the distance between an expected position of a magnetic head relative to a track centerline and an actual position of the magnetic head relative to the track centerline;

filtering and rectifying the position error signal amplitude to generate a sway mode signal amplitude indicative of an oscillation of the actual position of the magnetic head relative to the track centerline in a selected frequency range;

determining an absolute value of the sway mode signal amplitude;

determining whether the absolute value of the sway mode signal amplitude exceeds a threshold value; and

responsive to determining that the absolute value of the sway mode signal amplitude exceeds the threshold value, propagating a warning signal.

2. (currently amended) The method of claim 1, wherein the filtering step further comprises:

testing ~~a~~ the magnetic data storage and retrieval system to determine a unique sway mode frequency range; and

programming a programmable filter to exclude signals other than those near the unique sway mode frequency.

3. (currently amended) A method of predicting head-disk interaction in a magnetic data storage and retrieval system, comprising:

detecting a position error signal amplitude indicative of the distance between an expected position of a magnetic head relative to a track centerline and an actual position of the magnetic head relative to the track centerline~~The method of claim 1, wherein the detecting step further comprises detecting a~~ the position error signal during an idle time function;

filtering and rectifying the position error signal amplitude to generate a sway mode signal amplitude indicative of an oscillation of the actual position of the magnetic head relative to the track centerline in a selected frequency range;

testing a the magnetic data storage and retrieval system to determine a unique sway mode frequency range;

programming a programmable filter to exclude signals other than those near the unique sway mode frequency;

determining an absolute value of the sway mode signal amplitude;

determining whether the absolute value of the sway mode signal amplitude exceeds a threshold value; and

responsive to determining that the absolute value of the sway mode signal amplitude exceeds the threshold value, propagating a warning signal.

4.-7. (Canceled)

8. (currently amended) An apparatus for predicting head-disk crash in a magnetic data storage and retrieval system, comprising:

means for detecting a position error signal amplitude indicative of the distance between an expected position of a magnetic head relative to a track centerline and an actual position of the magnetic head relative to the track centerline;

means for filtering and rectifying the position error signal amplitude to generate a sway mode signal amplitude indicative of an oscillation of the actual position of the magnetic head relative to the recording surface in a selected frequency range;

means for determining an absolute value of the sway mode signal amplitude;

means for determining whether the absolute value of the sway mode signal amplitude exceeds a threshold value; and

means for, responsive to determining that the absolute value of the sway mode signal amplitude exceeds the threshold value, propagating a warning signal.

9. (currently amended) The apparatus of claim 8, wherein the means for filtering further comprises:

means for testing a the magnetic data storage and retrieval system to determine a unique sway mode frequency range; and

means for programming a programmable filter to exclude signals other than those near the unique sway mode frequency range.

10. (currently amended) An apparatus for predicting head-disk crash in a magnetic data storage and retrieval system, comprising:

means for detecting a position error signal amplitude indicative of the distance between an expected position of a magnetic head relative to a track centerline and an actual position of the magnetic head relative to the track centerline ~~The apparatus of claim 8~~, wherein the means for detecting further comprises means for detecting a the position error signal during an idle time function;

means for filtering and rectifying the position error signal amplitude to generate a sway mode signal amplitude indicative of an oscillation of the actual position of the magnetic head relative to the recording surface in a selected frequency range;

means for determining an absolute value of the sway mode signal amplitude;

means for testing a the magnetic data storage and retrieval system to determine a unique sway mode frequency range;

means for programming a programmable filter to exclude signals other than those near the unique sway mode frequency range

means for determining whether the absolute value of the sway mode signal amplitude exceeds a threshold value; and

means for, responsive to determining that the absolute value of the sway mode signal amplitude exceeds the threshold value, propagating a warning signal.

11.-14. (Canceled)

15. (currently amended) The apparatus of claim 8, wherein the apparatus for predicting head-disk crash in a magnetic data storage and retrieval system further comprises:

an outer housing or base containing a plurality of stacked, parallel magnetic disks, which are closely spaced apart;

an actuator comprising a plurality of stacked, parallel actuator arm/suspensions in the form of a comb that is pivotally mounted to the base about a pivot assembly;

a controller, mounted to the base, for selectively moving the comb of arm/suspensions relative to disks and monitoring and providing command inputs to the actuator; and

one or more magnetic read/write transducers.

16.-17. (Canceled)

18. (currently amended) A computer program product in a computer usable medium for predicting head-disk crash in a magnetic data storage and retrieval system, comprising:

instructions on the computer usable medium for detecting a position error signal amplitude indicative of the distance between an expected position of a magnetic head relative to a track centerline and an actual position of the magnetic head relative to the track centerline;

instructions on the computer usable medium for filtering and rectifying the position error signal to generate a sway mode signal amplitude indicative of an oscillation of the actual position of the magnetic head relative to the track centerline in a selected frequency range;

instructions on the computer usable medium for determining an absolute value of the sway mode signal amplitude;

instructions on the computer usable medium for determining whether the absolute value of the sway mode signal amplitude exceeds a threshold value; and

instructions on the computer usable medium for, responsive to determining that the absolute value of the sway mode signal amplitude exceeds the threshold value, propagating a warning signal.

19. (currently amended) The computer program product of claim 18, wherein the instructions for filtering further comprise:

instructions on the computer usable medium for testing a the magnetic data storage and retrieval system to determine a unique sway mode frequency range; and

instructions on the computer usable medium for programming a programmable filter to exclude signals other than those near the unique sway mode frequency range.

20. (currently amended) A computer program product in a computer usable medium for predicting head-disk crash in a magnetic data storage and retrieval system, comprising:

instructions on the computer usable medium for detecting a position error signal amplitude indicative of the distance between an expected position of a magnetic head relative to a track centerline and an actual position of the magnetic head relative to the track centerline~~The computer program product of claim 18, wherein the instructions for detecting further comprise~~ instructions on the computer usable medium for detecting a the position error signal amplitude during an idle time function;

instructions on the computer usable medium for filtering and rectifying the position error signal to generate a sway mode signal amplitude indicative of an oscillation of the actual position of the magnetic head relative to the track centerline in a selected frequency range;

instructions on the computer usable medium for determining an absolute value of the sway mode signal amplitude;

instructions on the computer usable medium for testing a the magnetic data storage and retrieval system to determine a unique sway mode frequency range;

instructions on the computer usable medium for programming a programmable filter to exclude signals other than those near the unique sway mode frequency range;

instructions on the computer usable medium for determining whether the absolute value of the sway mode signal amplitude exceeds a threshold value; and

instructions on the computer usable medium for, responsive to determining that the absolute value of the sway mode signal amplitude exceeds the threshold value, propagating a warning signal.